

Propane Conversion Kit Instructions

Sealed Combustion Gas Boiler Logano GA244

This kit and instructions are for converting the GA244 model boilers from Natural Gas to Propane.

Required Input Rates

GA244-37 156 MBtu/hr	GA244-44 182 MBtu/hr	GA244-53 220 MBtu/hr	GA244-62 259 MBtu/hr
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WARNING!

This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life. The qualified service agency performing this work assumes responsibility for the proper conversion of this appliance with this kit.



CAUTION!

The gas supply shall be shut off prior to disconnecting the electrical power, before proceeding with the conversion.



Notice! Save these instructions for later use.

Please read these instructions carefully!

Buderus

1 Safety Considerations

Please observe the following safety instructions.

1.1 Application purpose

This kit and instructions are for converting the GA244 model boiler from Natural gas to Propane.

1.2 Guideline of Notices

Two levels of danger are identified by the following warning labels:



WARNING!

DANGER

Denotes a possible severely dangerous situation where, without proper caution, bodily injury or loss of life may result.



WARNING!

DANGER

due to electricity.



APPLICATION NOTICE

Application comment for optimum use of equipment and adjustment as well as useful information.

1.3 Observe the following symbols



WARNING!

DANGER

due to explosion of gas.

- Work only on gas components when you have a license to do so.
- Note that the assembly of gas and vent connections, the initial start-up, the electrical connections, the maintenance and service can only be performed by a licensed service contractor or technician.



WARNING!

DANGER

due to electricity.

- Prior to doing any work on the heating system, disconnect all electrical power to the boiler at the emergency switch.
- It is NOT sufficient to shut off only the boiler control!

2 Parts List for Converting the Boiler to Propane

1. Honeywell gas valve conversion kit # 393 691 which includes:
 - black capscrew
 - pressure regulator adjustment screw
 - red spring
 - yellow label for gas control
2. Pilot orifice 390686-61
3. Main gas burner orifices and washers
4. Label to be filled out and affixed to the appliance
5. Instructions

3 LP Conversion

To convert the boiler to Propane, the following instructions must be adhered to:

1. If the boiler has been in operation, **shut off the main gas shut-off valve**. If the boiler has not been placed into service, go to step 3.
2. Turn off all electric power to the appliance and set the thermostat to lowest setting.
3. Remove jacket panel screws (Fig. 1, **Item. 1**) from left and right side, tilt forward top of front jacket panel (Fig. 1, **Item. 2**) then lift up from the bottom and remove.

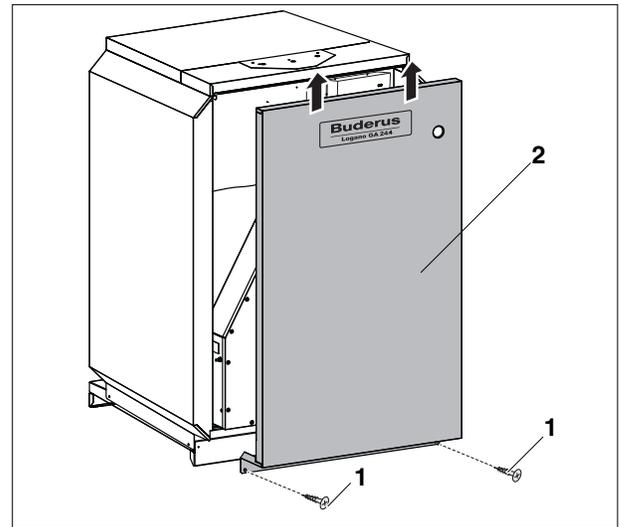


Fig. 1 Removal of front jacket panel

Item. 1: Jacket panel screws

Item. 2: Front jacket panel

4. Remove side cover plate screws (Fig. 2, **Item. 1**) from the right side jacket panel (Fig. 2, **Item. 3**) and then remove the side cover plate (Fig. 2, **Item. 2**).

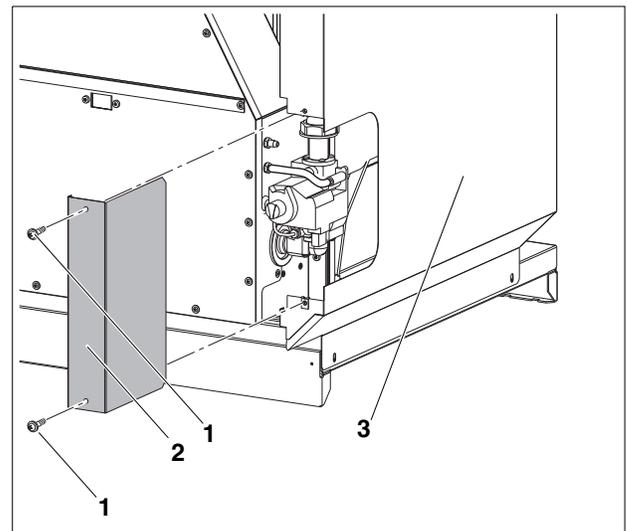


Fig. 2 Removal of side cover plate

Item. 1: Side cover plate screws

Item. 2: Side cover plate

Item. 3: Right side jacket panel

Propane Conversion

5. Turn the gas control manual knob (Fig. 3, **Item. 1**) clockwise to the "OFF" position. Do not use excessive force.



DANGER

For explosion due to gas.

- WARNING!**
- Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" instructions in the safety information printed on page 8. If you do not smell gas, go to the next step.

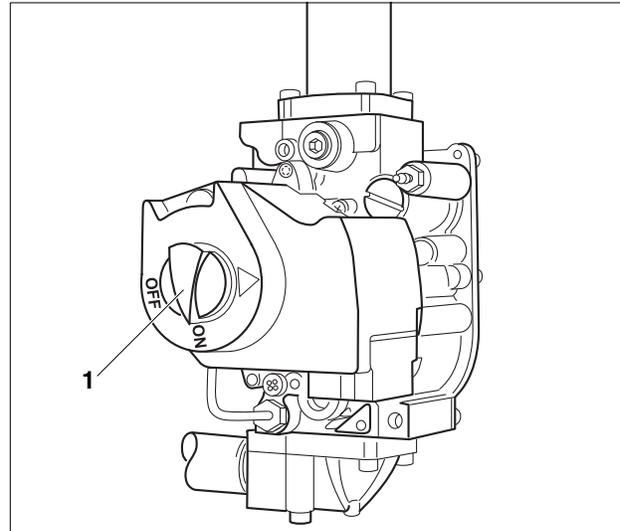


Fig. 3 Gas control valve

Item. 1: Gas control knob (set to position "ON")

Change out main orifices

6. Remove the pressure regulator capscrew (Fig. 4, **Item. 1**) from the gas control valve (Fig. 4, **Item. 4**).
7. Remove the pressure regulator adjusting screw (Fig. 4, **Item. 2**).
8. Remove the stainless steel spring (Fig. 4, **Item. 3**).
9. Install the red spring contained in the Honeywell LP gas conversion kit into the gas control (Fig. 4, **Item. 4**).
10. Install the new pressure regulator adjusting screw until it is flush with top of regulator. Turn six (6) complete turns clockwise. This will supply a preliminary pressure of approximately 10.0 inches water column. The setting needs to be checked with a manometer after conversion of the manifold is completed.
11. Install new black protective screw (Fig. 4, **Item. 1**) from the LP conversion kit.
12. Clean the gas control body (Fig. 4, **Item. 4**) and apply the yellow label (Fig. 4, **Item. 5**) from the LP conversion kit to the gas control valve so that it is easily visible.

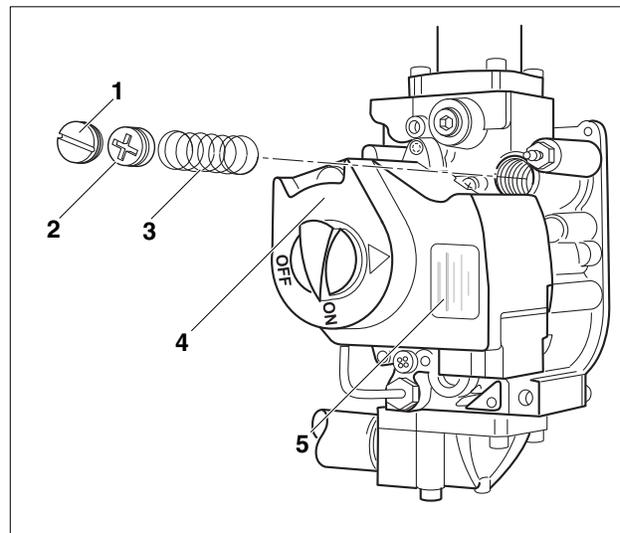


Fig. 4 Gas control valve

Item. 1: Protective screw

Item. 2: Mainifold pressure adjustment screw

Item. 3: Stainless steel spring

Item. 4: Gas control valve

Item. 5: Yellow label

Propane Conversion

13. Remove the burner tray cover plate screws (Fig. 5, **Item. 1**) from the burner tray cover plate (Fig. 5, **Item. 2**) and remove this cover plate (Fig. 5, **Item. 2**).

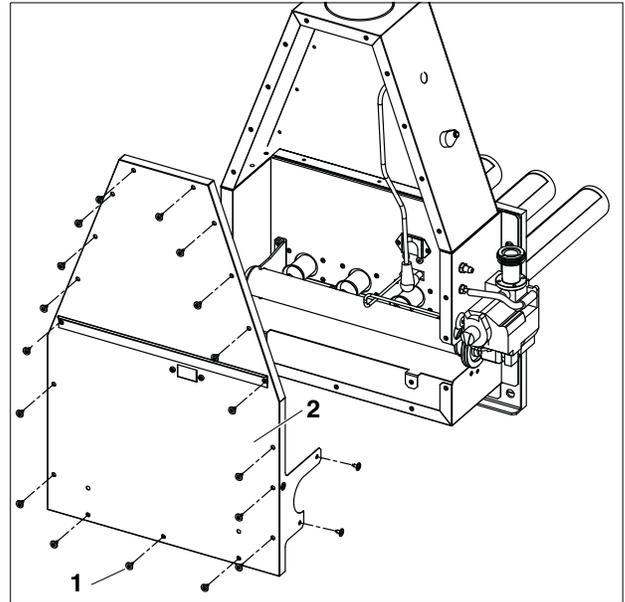


Fig. 5 Gas burner

Item. 1: Burner tray cover plate mounting screws

Item. 2: Burner tray cover plate

14. Install the new main orifices (Fig. 6, **Item. 1**) and copper washers supplied with the kit (Fig. 6, **Item. 2**). Ensure orifices the proper size for your boiler application per Table. 1.



NOTE

These orifice sizes are for 0 - 2000 ft elevation only. For elevation between 2001 - 8000 ft, refer to "Instructions for High Altitude Conversion".

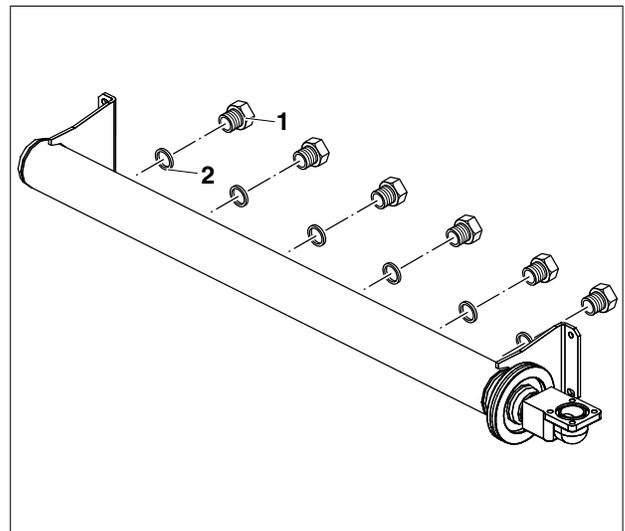


Fig. 6 Installation of the main orifices

Item. 1: Main orifice

Item. 2: Copper washer

Orifice sizes for Propane				
Model	GA244-37	GA244-44	GA244-53	GA244-62
Orifice size	1.95	2.15	2.10	2.20
Quantity	4	4	5	6

Table. 1 Orifice sizes for propane

Propane Conversion

Change-out of the pilot burner orifice

15. Disconnect the pilot gas line (Fig. 7, **Item. 3**) from the pilot assembly (Fig. 7, **Item. 1**).
16. Remove the pilot orifice (Fig. 7, **Item. 2**).
17. Install the new orifice 390686-61 in the pilot assembly (Fig. 7, **Item. 1**).
18. Install the pilot gas tubing (Fig. 7, **Item. 3**) in the pilot assembly (Fig. 7, **Item. 1**).
19. Install the burner tray cover plate on the burner tray assembly in reverse order of removal. Ensure the screws are tightened firmly.

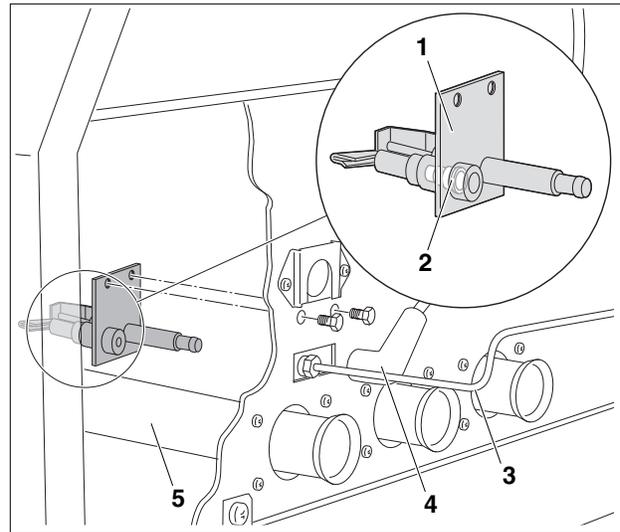


Fig. 7 Pilot assembly (Cut-a-way drawing)

Item. 1: Pilot assembly

Item. 2: Pilot burner orifice

Item. 3: Pilot gas line

Item. 4: Ignition cable

Item. 5: Main burner

20. Fill out the required information on the conversion plate and affix the plate to the outside of the boiler jacket as close as possible to the existing rating label.

Testing for leaks

21. If the boiler has not been placed in operation follow the installation instructions in GA244 Installation , Operation and Maintenance Manual supplied with the boiler. If the boiler has been in operation, then open the main gas shut-off valve. Test the gas piping on the input side of the gas control (Fig. 8) for leaks by applying a soap and water solution. If no leaks are found, go to step 23. If any leaks are found, shut off the main gas shut-off valve.
22. Repair leaks and repeat step 21.

Propane Conversion

23. Shut off the main gas supply shut-off valve. Remove the line pressure tapping plug (Fig. 8, **Item. 2**) from the gas control. Install a test plug, and hook up a manometer to measure the supply pressure.
24. Remove the manifold pressure tapping plug (Fig. 8, **Item. 3**) from the gas control valve. Install a test fitting and hook up a manometer to measure the manifold pressure.
25. Open the main gas piping shut-off valve and measure the supply pressure to the boiler. The supply pressure must be between 11 and 13 inches water column. If the pressure is not between 11 and 13 inches water column, when the boiler is running, call your service technician or gas supplier.
26. Follow the lighting instructions on the next page.

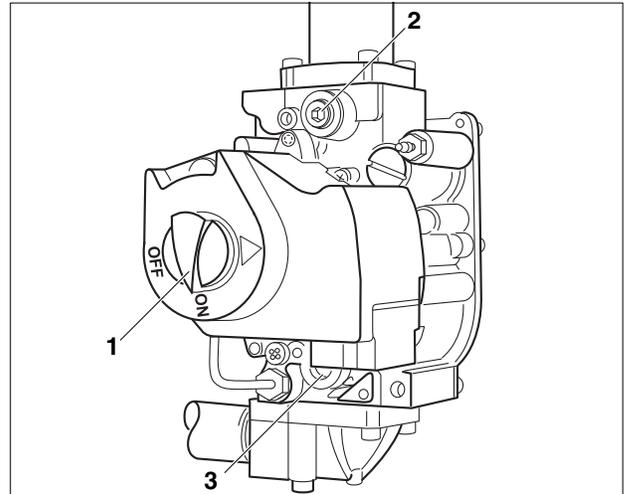


Fig. 8 Gas control valve

Item. 1: Gas control knob (set to "ON")

Item. 2: Manifold pressure test port

Item. 3: Supply pressure test port

3.1 Lighting Instructions

For your safety, read before lighting



WARNING !

due to not follow these instructions.

WARNING!

- If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.
- Follow these operating instructions.



DANGER !

What to do if you smell gas:

DANGER!

- No open fire! Do not smoke!
- Avoid formation of sparks! Do not touch any electric switch, phone, electric plug or bell!
- Shut off main gas supply.
- Open windows and doors!
- Notify all occupants!
- Leave the building!
- Immediately call your gas supplier, heating contractor or fire department from a phone outside the building!

- A)** This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
- B)** Check for smell of gas around the appliance area. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- C)** Use only your hand to turn the gas control knob (Fig. 8, **Item. 1**). Never use tools. If the knob will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D)** Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

4 Operating Instructions

STOP! Read the safety precautions on page 8 of this manual.

1. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, **STOP!** Follow "B" in the safety information on page 8. If you do not smell gas, go to the next step.
2. Locate the pilot assembly by looking through the access viewing port (Fig. 9, **Item. 1**) on the burner front plate.
3. Turn the gas control knob (Fig. 10, **Item. 1**) counterclockwise to position "ON".
4. Turn on the electrical power to the application.
5. Set the thermostat to the desired setting to activate the boiler (Thermostat adjustment should be at least 10 °F above the room temperature).
6. The ignition control should initiate sparking at the pilot. The pilot should light and then the main burners should light. If the main burners do not light, shut off the main gas piping shutoff valve. Shut off all electric power to the appliance and call your service technician or gas supplier.
7. If the main burners light, then the gas fittings, union and orifices must be tested for leaks with a soap and water solution. If no leaks are found then go to step 9. If any leaks are found, turn off gas control knob (Fig. 10, **Item. 1**) clockwise to "OFF". Turn off all electric power to the appliance, set the thermostat to lowest setting.
8. Repair leaks. Repeat steps 1 through 7.
9. Check the supply pressure while the boiler is running. Pressure must be between 11 and 13 inches WC for propane gas. Record supply pressure on the boiler start-up procedure.

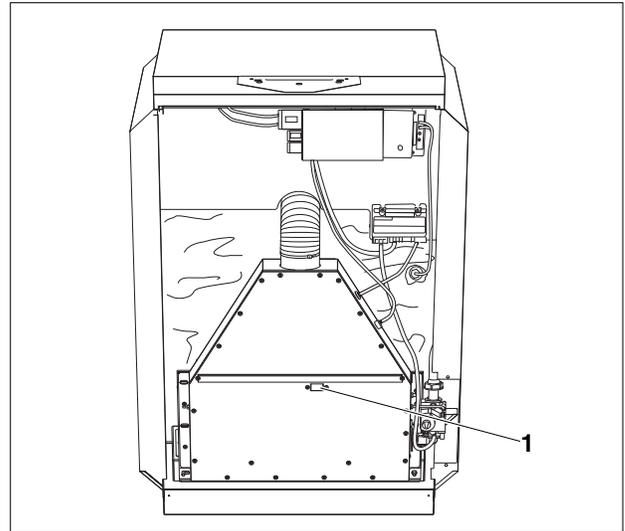


Fig. 9 Front view

Item. 1: Viewing port

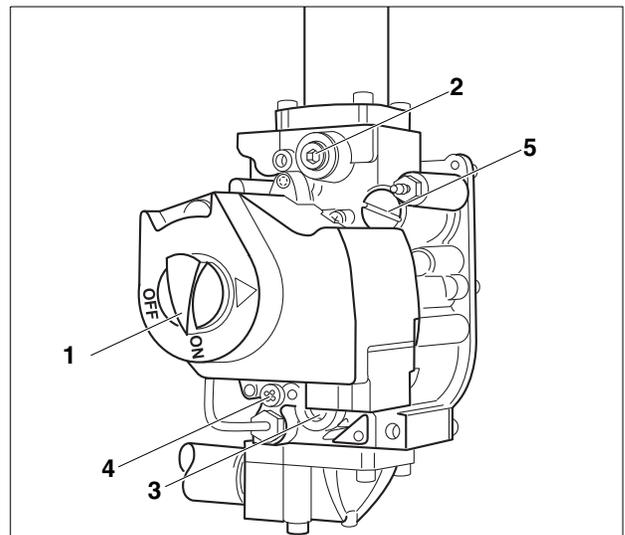


Fig. 10 Gas control valve

Item. 1: Gas control knob (set to "ON")

Item. 2: Test port screw for gas supply measurement

Item. 3: Test port screw for manifold pressure measurement

Item. 4: Protective screw for pilot pressure adjustment

Item. 5: Protective screw for manifold pressure adjustment

Propane Conversion

10. Check manifold pressure. Set the manifold pressure according to the values in Table 2. To adjust the manifold pressure (Fig. 10, **Item. 5**), remove the capscrew from the gas control. Turn the pressure regulating adjusting screw clockwise to increase, or counterclockwise to decrease the manifold pressure. This adjustment must be made while the boiler is in operation.
11. After adjustment, record pressure on the form on page 36, and install the capscrew (Fig. 10, **Item. 5**) on the gas control valve.
12. Observe the pilot flame (Fig. 11, **Item. 2**) through viewing port (Fig. 9, **Item. 1**) in the burner cover plate. The flame should envelop the flame sensor 1/2 to 1 1/2 inch, see (Fig. 11, **Item. 1**). If the pilot flame is satisfactory then go to step 13. If the pilot flame is too small or too large, adjust the pilot using pilot adjustment screw. Turn the inner adjustment screw (Fig. 10, **Item. 4**) clockwise to decrease, or counterclockwise to increase the pilot flame. After adjustment, replace the cover screw (Fig. 10, **Item. 4**) and tighten firmly.

GA244	Natural gas [inch W.C.]	Propane [inch W.C.]
37	3.77	8.03
44	3.65	7.63
53	3.73	8.11
62	3.77	6.15

Table 2 Required manifold pressure

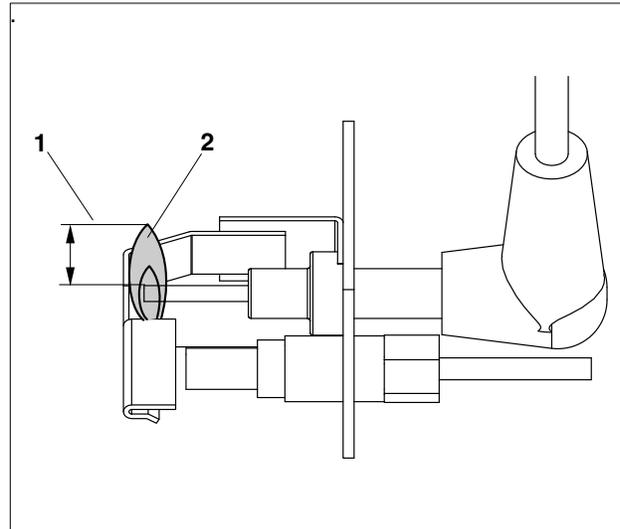


Fig. 11 Pilot flame

Item. 1: 1/2" to 1 1/2"

Item. 2: Flame

13. Observe the main burner flame (Fig. 12, **Item. 1**) through the viewing port (Fig. 9, **Item. 1**) in the burner cover plate. The flame should have a smooth, firm contour and must be mostly blue color. If the main burner flame is satisfactory then go to step 14. If the main burner flame is lazy, yellow, or lifting off the burners, turn the gas control knob (Fig. 10, **Item. 1**) to "OFF". Shut off the main gas supply shut-off valve. Disconnect all electric power to the appliance and call your technician or gas supplier.
14. The ignition safety shut-off must be tested. Test the safety shut-off by shutting off the main gas piping shutoff valve. The main burner and pilot flame (Fig. 11, **Item. 2**) will extinguish. Within six (6) seconds the gas control main gas solenoid should close and make an audible sound. The ignition will spark. After 90 seconds, the module should go into lock out mode and the spark should stop. Disconnect the electric power to the appliance. Open the main gas shutoff valve. Turn on the electric power to the unit. A normal operating sequence should occur. If the gas control functions satisfactorily then go to step 15. If the gas control does not function satisfactorily, immediately turn the gas control knob (Fig. 13, **Item. 1**) clockwise to "OFF".

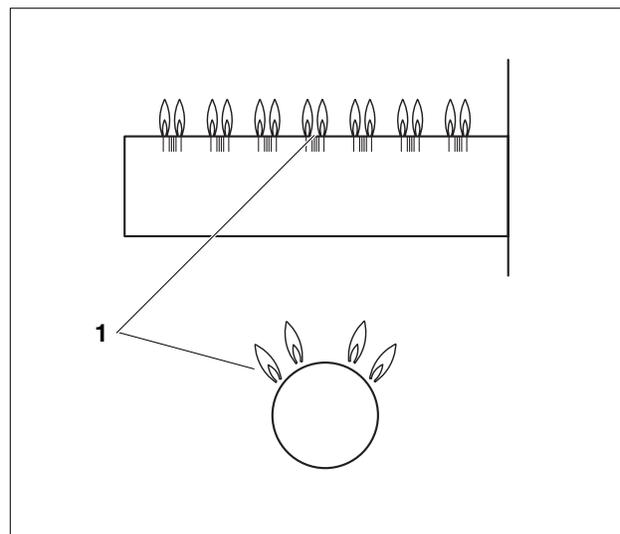


Fig. 12 Main burner

Item. 1: Main burner flame

Propane Conversion

Shut off the main gas piping shut-off valve.
Disconnect all electric power to the appliance and call your service technician or gas supplier.

15. Turn the gas control knob (Fig. 13, **Item. 1**) counterclockwise to "OFF".
16. Shut the main gas piping shut-off valve.
17. Turn off electric power to the appliance, and set the thermostat to the lowest setting.
18. Remove the pressure test fittings from the gas supply and manifold pressure tabs in the gas control and replace the plugs.
19. Repeat steps 1 to 6, and 13 to place the appliance back in operation. Check the plugs in the gas control with a soap and water solution. If no leaks are found go to step 21. If any leaks are found, shut off the main gas piping shut-off valve and turn off all electric power to the appliance and turn the gas control knob clockwise to "OFF" (Fig. 13, **Item. 1**).
20. Repair leaks. Open the main gas shutoff valve and repeat step 19.
21. Wash off the soap and water solution used to test for leaks to ensure no corrosive effects from the soap.
22. Check the high limit aquastat operation to ensure that it shuts off the boiler when the boiler water temperature reaches the setpoint of the aquastat. Records fill in on form found on page 33.
23. Replace the front boiler jacket panel.

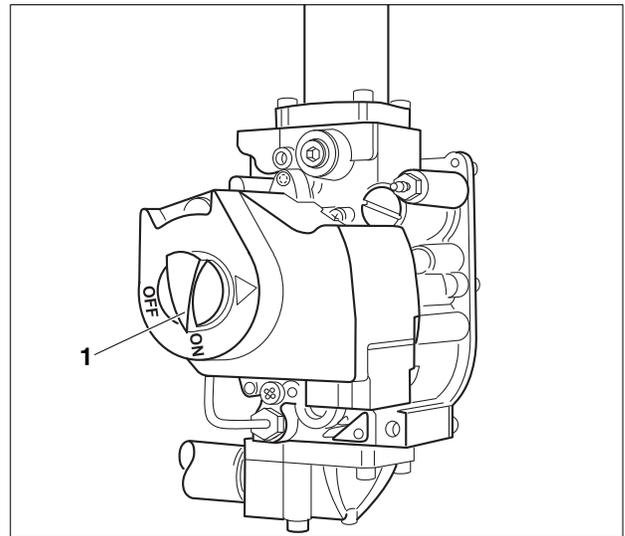


Fig. 13 Gas control valve

Item. 1: Gas control knob (set to "ON")

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